Both groups were age and sex matched. Fracture pattern and its orientation, position of screw in relation to fracture, post-operative displacement and union were assessed.
Results: There were 76 patients (group-I, 37 and group-II, 39), mostly females with ages between 19 and 84 years. In group-I, 15 patients had bi-malleolar Dennis–Webber type-B fractures, 9 had type-C and 10 had tri-malleolar fractures. Three had isolated medial malleolar fractures. In group-II, 20 patients had bi-malleolar type-B fractures, 9 had type-C fractures and there were 5 tri-malleolar fractures. Five had isolated medial malleolar fractures. The fracture orientation in both the groups was mostly horizontal and the screw placement was at an angle to the fracture in the majority of cases in both groups.

There was no significant difference between the two groups, in terms of union and post-operative fracture displacement at 6 weeks follow-up.
Conclusion: Medial malleolar fractures can be efficiently fixed with one screw only, which does not increase the risk of post-operative fracture fragment displacement compared to using two screws.
Keywords: Ankle fractures; Malleolar fracture; Medial malleolus; Comparison

doi:10.1016/j.injury.2009.06.272

8A.3

Results of ankle joint arthrodesis by triangular external fixation for posttraumatic arthrosis

J. Kiene[a], H. Cabrera-Palacios[b,*], A.P. Schulz[a,b]

[a] *University Hospital Lübeck, Germany*
[b] *BG Trauma Hospital Hamburg, Germany*

There are different techniques regarding ankle arthrodesis for non-infected end stage arthrosis of the ankle joint. In the last ten years there is a clear favour toward internal fixation. We retrospectively examined the technique and clinical long-term results of external fixation in a triangular frame.
Patients and methods: From 1994 to 2001 a consecutive series of 95 patients with end stage arthritis of the ankle joint were treated. The case notes were evaluated regarding trauma history, medical complaints, further injuries and illnesses, walking and pain status and occupational issues and the clinical examination before arthrodesis. Mean age at the index procedure was 45.4 years (18–82), 67 patients were male (70.5%). Via a bilateral approach the malleoli and the joint surfaces were resected. An AO fixator was applied with two Steinmann-nails inserted. Follow up examination at mean 4.4 years included a standardised questionnaire and a clinical examination including the criteria of the AOFAS-score and radiographs.
Results: In all cases the index procedure was possible although in 2 cases soft tissue contracture meant that a pes equinus position had to be accepted. In two cases a further bone transplant was performed at 6 + 9 weeks for unsatisfactory bony union. After mean 12.3 (8–16) weeks, radiographs confirmed satisfactory union and the fixator was removed. In 4 patients a non-union of the ankle arthrodesis developed (4.5%). The mean AOFAS score improved from 20.8 to 69.3 points. Statistical analysis of the insurance status showed that patients insured under a workers injury compensation scheme had a mean score of 63.6 compared to 75.1 for the remaining ($p = 0.027$).
Discussion: Non-union rates and clinical results of arthrodesis by triangular external fixation of the ankle joint do not differ to internal fixation methods in literature comparison. The complication rate and the reduced patient comfort reserve this method mainly for infected arthritis and complicated soft tissue situations.
Keywords: Post-traumatic ankle arthrodesis; External fixation; Arthrodesis; Clinical results

doi:10.1016/j.injury.2009.06.273

8A.4

Ankle fractures: Impact of timing of surgery

S.P. Adamson, R. Trickett*, P. Hodgson, K. Mohanty

University Hospital Wales, UK

Introduction: The aim of this study was to analyse the relationship between the delay in surgical intervention of open reduction internal fixation (ORIF) for closed ankle fractures from presentation, and inpatient stay duration and post-operative complications.
Methods: Two audits of 100 closed ankle fractures were carried out in 2004 and 2007, using trauma theatre ledger "ORIF ankle". Results were collated excluding polytrauma, compound, talar and pilon fractures. Emergency department presentation times were noted and time of anaesthetic to determine surgical delay. Notes were collated an inpatient stay studied for post-operative complications and discharge delay.
Results: Data were obtained for 151 patients (73 from 2004 and 78 from 2007), average age 46 years (range 15–91) and male:female 69:82. In total 16 patients were operated on within 7 h of presentation, 29 within 12 h and 67 within 24 h cumulatively; group defined "early". 84 patients' surgery was delayed by over 24 h; group defined "delayed". Of the 67 "early" patients the mean inpatient stay was 2.281 days (±0.581) and those "delayed" mean stay was 4.761 days (±1.977 days), with a significant difference of $p = 0.021$ for independent Student's t-test. Four patients (5.97%) from early group experienced post-operative complications (one wound infection); 13 (15.48%) of delayed developed complications (eight wound infections). Delays included lack of theatre time, swelling and lack of fitness for surgery.
Discussion: By performing surgery within 24 h presentation inpatient stay is significantly reduced in duration and complications. This has an impact on patient wellbeing and costs of inpatient stay (up to £750 per patient). Measures, where possible, to ensure early operative intervention will improve patient outcome and reduce costs.
Keywords: Closed ankle fracture; Surgical timing

doi:10.1016/j.injury.2009.06.274

8A.5

Distal tibial fractures: To nail or to plate? That is the question. A case controlled series of locking compression plate (LCP) vs intramedullary nailing for extra-articular distal tibial fractures

B. Ollivere*, D. Cumming, M. Al-Hadithi, S. Deakin

West Suffolk Hospital NHS Trust, UK

The distal tibial locking compression (LCP) plate (Synthes Ltd) is a precontoured locking plate designed for management of distal tibial fractures. Fixation of extra-articular distal tibial fractures has traditionally been addressed with intramedullary nailing or external fixation. The distal tibial LCP provides a new method of management. We present the first case matched series of the LCP.

Twenty-one serial patients with simple extra-articular diaphyseal tibial fractures (AO type 4.3A) previously treated with distal tibial LCP were matched to 20 patients treated with a slotted AO tibial nail. In all cases it would have been technically possible to nail the fractures. Case matching was performed for age, smoking status,